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Barbara A. Brewer and Michael C. Gross

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PRINCIPAL INVESTIGATOR:
ARTHUR W. STAATS

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ABSTRACT

In order to test whether meaning will transfer when a backward conditioning paradigm is utilized, Staats' language conditioning procedure, involving the pairing of UCS evaluative words with CS nonsense syllables, was modified so that the UCS words preceded the CS nonsense syllables on each trial. 70 undergraduate subjects, randomly divided into two groups of 35, were exposed to this treatment. The analysis of their subsequent ratings of the nonsense syllables showed a significant conditioned meaning effect.

Osgood (1953), Mowrer (1954) and Staats (1961) have stressed the importance of classical conditioning as a major underlying principle in the acquisition and modification of word meaning. The latter author has provided a method for testing this conception which involves pairing a number of UCS words having a common semantic component with a CS nonsense syllable. Utilizing this procedure, Staats and his associates (e.g., Staats and Staats, 1957, 1959; Staats, Staats, and Heard, 1961; Staats, Staats, Heard, and Nims, 1959) have shown that meaning may in fact be classically conditioned, and these results have been supported by the findings of other investigators (e.g., Miller, 1966; Paivio, 1964). Every study that has been reported in the area has utilized a forward conditioning paradigm; that is, the word or nonsense syllable to be conditioned has in each case preceded the UCS word. There are many instances in language, however, in which words are modifies by preceding verbal stimuli. To such cases a backward conditioning paradigm seems to apply.

The present investigation was designed to explore the possibility of conditioning evaluative meaning using a backward conditioning paradigm. UCS words sharing a common evaluative component are paired with CS nonsense syllables. Staats' conditioning procedure is followed with the exception that on each conditioning trial a UCS word precedes, rather than follows, a CS nonsense syllable.

Subjects

The subjects were 70 students, randomly selected from a class in elementary educational psychology at the University of Hawaii.

Procedure

The subjects were randomly assigned to two groups. They were told that they were taking part in a learning study, first of visually presented nonsense

syllables and secondly of spoken words. The nonsense syllables were presented with a slide projector, loaded and set so that each slide was shown for 5 seconds with a 5 second interval between syllables. The syllables VAF, XAD, YIK, VEC, and GAH were presented four times each in random order, after which the subjects were asked to check, from a list of 10 syllables, those they remembered seeing.

Next, 10 words were spoken by E with 3 second intervals between the words, after which the subjects were asked to check those which they recognized from a list of 20 words.

The subjects were told that these two types of learning would now be studied in combination and asked to give their complete attention to both types of stimuli but not to use any mnemonic devices which they might customarily employ in other learning situations. The nonsense syllables, as before, were shown automatically for 5 seconds with 5 second intervals between. The words were spoken 1 second before the onset of each syllable. Each syllable was presented 16 times. The ordering was random but with no syllable presented more than twice in succession. Five syllables were used: YOF, LAJ, XEH, QUG, and WUH. For the first group of subjects, YOF and XEH were paired with 16 positive and 16 negative words respectively, but for the second group YOF was paired with 16 negative and XEH with 16 positive words. The other three syllables were paired with words having no systematic meaning. Subjects were then told how to rate nonsense syllables on seven point semantic differential scales, on the pretext that the Es needed some indication of how they felt about the syllables in case these feelings influenced learning. The scale for each syllable was printed on a separate page and as the subjects rated the syllables they also indicated whether they recognized them from the study. Recall of the words was tested and finally, in order to test for awareness, the subjects were asked

to record any thoughts that they had had during the course of the experiment which they thought relevant, such as ideas about the purpose of the experiment.

Conditioned meaning (pleasant and unpleasant), syllables (YOF and XEH), and Groups (I and II) were the variables examined in the analysis, a Lindquist Type II design. The meaning and syllables were conceptualized in a 2 x 2 Latin square.

Results and Discussion

Five subjects in Group I and four in Group II indicated in their records that they had noticed some relationship between certain syllables and pleasant or unpleasant words. These nine records were removed before the analysis was done, so that it could not be said that the awareness caused the conditioning. One further record was removed randomly from Group II to retain equal numbers. This left an N of 30 in each group.

Table 1 presents the means and SDs of the meaning scores, the extreme pleasant score being 1 and the extreme unpleasant score 7.

The analysis of the data is presented in Table 2. The results indicate that conditioning of evaluative meaning occurred when a backward conditioning paradigm was used. The F for the conditioned evaluative meaning variable was significant at better than the .05 level with df, 1 and 59.

TABLE 1

Means and SDs of Conditioned Meaning Scores

	Syllables			
	YOF		XEH	
Group	Mean	SD	Mean	SD
I	3.50	1.28	4.63	1.30
II	4.03	1.02	4.00	1.29

Note. The pleasant pole scored 1, unpleasant 7.

TABLE 2

Analysis of Variance of Conditioning Data

Source	df	MS	F
Between Ss			
Groups	1	.07	
Error	58	1.87	
Within			
Cond. Meaning	1	10.21	6.35*
Syllables	1	9.07	5.64*
Residual	58	1.61	
Total	119		

*P less than .05

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13. ABSTRACT

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